DOCUMENT RESUME

ED 242 428 PS 014 309

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TITLE Extreme Environments: The Ghetto and the South Pole.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.
PUB DATE [81]
NOTE 31p.
PUB TYPE Viewpoints (120)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Adjustment (to Environment); Blacks; Cooperation; *Disadvantaged Environment; *Disadvantaged Youth; Early Childhood Education; Educational Needs; Emotional Development; *Futures (of Society); Ghettos; Minority Groups; Personality Development; Psychological Characteristics; *Stress Management; *Stress Variables; Whites
IDENTIFIERS *Twenty First Century

ABSTRACT

Extreme environments, such as polar regions or space crafts, provide an analogue for speculations concerning the needs of, educational provisions for, and environmental impacts on ghetto youth in kindergarten through the third grade. This discussion first centers on the common qualities of an extreme environment (whether exotic or mundane): forced socialization, spatial isolation, depression, time elasticity, biological dysrhythmia, sociological dysrhythmia, increased free time, extremes of noise and silence, loneliness, fears of abandonment, anxiety, panic, information fractionalization, boredom, and inability to escape. These qualities are thought to offer specific intervention and prevention sites for the attenuation of environmental consequences. After exploring aspects of stress management in relationship to the needs of the young ghetto child, the discussion shifts to consider optimal characteristics of the 21st-century citizen, notable cosmopolitanism, that can be nurtured in the early school years. The concluding discussion postulates essential elements in education for young children in the 21st-century. In addition to attaining knowledge of the range and scope of intellectual possibilities, it is argued that ghetto youth should learn the consequences of pride and flexibility and, especially in the areas of health and racism, acquire concepts and skills enabling them to more adequately control their destiny. (RH)

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ED242428

Extreme Environments: The Ghetto and The South Pole

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As a statement of the value of children, the National Institute of Education (NIE) has elected to seek new or improved comprehensive services and approaches for youth in grades kindergarten through three. One strand of this effort is geared toward considering speculative, high risk strategies which might improve instruction by extrapolating ideas from different areas of research. It is in this service that this article is written.

In this article, the ghetto will be considered as an extreme environment. Relevant knowledge from other extreme environments, such as how humans adapt and adjust in polar regions or spacecraft, will be distilled to meet the given aim of NIE. Amongst the areas to be considered in comparing extreme stress will be societal and environmental influences as well as the effects of media and new technology.

At the outset, it is submitted that for a nine-year-old, life in a ghetto may constitute a greater stress than that imposed on an adult astronaut or polar scientist. In general, this is because the nine-year-old, unlike the adult, is in a situation which is involuntary, which is bereft of a definite mission and carefully selected, highly trained, zealous companions. Likewise, the ghetto habitué knows there is not virtually limitless resources poised in readiness to come to his rescue should it be required. But most importantly, the child of nine recognizes that the duration of the extreme stress is indefinite, if not permanent, and that no rewards are showered upon those who merely succeed in surviving the stress.

Both the astronaut and the polar scientist have limited tenure in their exotic situations. Further, both may expect substantial, or even handsome, rewards for their risk which in fact might be statistically less dangerous in terms of possible fatality than what the nine-year-old faces in the same period of time in the ghetto.

Despite these considerations, in many ways much more is known about how to prepare adults to negotiate successfully in the exotic arenas of space or polar existence than how we should help a youth to live in the perhaps more hectic but mundane stressful environment of a ghetto. Probably the use of concepts and techniques in the one situation would inform and persuade policy in the other. For this reason, an examination of the ghetto as an extreme environment might be useful, not only for ghetto dwellers, but for habitués in other extreme situations.

Based on the theory of Lynn[1] any contemplations about youth must attend to: a) children in a specific age group; b) the specific categorizable needs and problems of children; c) the status of children as an indication of family functioning, or the adequacy of child-care services, or of our social values and priorities; d) children as consumers of professional services; e) children as victims, e.g., of adult behavior, a malfunctioning economy or discrimination; children as inherently independent members of society; f) children as potential delinquents or welfare recipients; g) children as "human capital"; or h) children as some combination of the above categories.

Therefore, the NIE goal of involving parents, emphasizing basic skills and improving the whole society by better health, social and other support for children will be met by keeping in mind such

theoretical underpinning. Similarly, all contemplations will be rooted in the consideration that NIE says it may institute ideas now imparted in 1990. Programs instituted in 1990 A.D. when a child is age five must keep in mind what is wished for and expected in 2040 A.D., when the targeted subject is age 55 and perhaps at his hegemony.

Accordingly, after detailing the common qualities of extreme environments, the 21st century citizen will be considered. Then the education of the 21st century citizen will be outlined.

As an overarching principle, it is indicated that what causes people to be mad (i.e. not able to adjust) is the difference between what they think the world will be and how they find it to be. For example, one is less likely to have maladjustment if one was trained all his life to be a fisherman and in fact worked all his life as a fisherman. If, however, one was trained to be a fisherman, but then was asked in adulthood to be a woodsman, there might exist considerable stress. The task at hand is to prepare the child so that adult reality is as congruent as possible with childhood expectations. Yet such an acculturation, which requires education and propaganda, must make allowance for diverse backgrounds, the need to preserve some things while casting away others and the need to adapt to the unknown. Hence the process must attend simultaneously to what is known and expected and what is unknown and unexpected. Life in extreme situations may require greater sensitivity to both these aspects of existence. For the purposes of this article it may mean that to survive in an extreme environment one has passed both more barriers and less barriers in order to learn.

The Common Qualities of an Extreme Environment

There are extreme mundane environments and extreme exotic stressful environments. An extreme environment is one which threatens the life of the inhabitants. An extreme exotic environment is one which few people experience. An extreme mundane environment is one which many people have experienced. What is extreme, however, is a relative concept. To a person who never saw the Amazon jungles, it would be exotic and stressful to his experience to be there. However, to a person from that jungle who had never seen a freeway, the same stress might be obtained if such a person was placed suddenly in the midst of the freeway. Beside being relative, extreme environments are transitional. Hence, what was once exotic, such as being a passenger in an airplane, can become commonplace or mundane.

The extreme exotic stressful environment is one in which few people have traversed, e.g., space traveler or a person who is a head of state. The extreme mundane stressful environment is one in which many people have traversed, e.g., ghetto dweller or a person who is undergoing divorcement. Both of these extreme environments, besides being relative and in possible transition as the individual adjusts, are characterized by dimensions of depth or intensity, height or amplitude and length or duration. These dimensions fluctuate dynamically depending on the moment-to-moment conditions and the individual's perception at that moment.

Generally, stress can be considered as wear and tear which is perceived by the individual on a continuum from positive to neutral to negative. The important aspect is the person's perceptions. For the same objective stress may be interpreted by the individual on different parts of the continuum as positive, neutral or negative,

e.g., making love. Further, to go through an exotic situation may be interpreted by the individual and/or other observers as a heroic action, e.g., living three months under the sea in a sea laboratory. To go through a mundane situation may be interpreted by the individual and/or other observers as a routine action, e.g., living three months as a patient in a mental hospital.

Yet despite the relativism of the concept, there are basic similarities. These similarities have far-reaching implications in the management of stress and the ability to learn and to teach under extreme conditions. Before itemizing the similarities, it should be noted that the more of each of these items one suffers, the more extreme the stress. The more uncontrollable and unpredictable these items, the more extreme the stress. Also, the more of these items in quality and quantity, the more the need for courage i.e., the ability to act on insufficient data. Finally, the more of these items in quality and quantity, the greater the need for hope, which is rendered usually by expectation of strong and available resources which can be mobilized if need be.

Hope is the last refuge for the wretched who are in the throes of an extreme stressful environment. Hope also is the best gift of the gods for such an inhabitant. The chief danger for all who roam in extreme environments is hopelessness.[2] It should be mentioned that hopelessness embraces one's present plight as well as the projected future.

When comparing the basic items that make up an extreme environment, the reader is reminded that the ghetto youth is more likely to be bereft of hope than the polar scientist. Also, the environment is more extreme for such a youth, which adds on more weight to the

assertion made in the introduction concerning the degree of difficulty involved in living in a ghetto. Whatever programs are instituted for the ghetto child, they must, therefore, be certain to supply large quantities of hope and many possibilities of future rewards. It is on the basis of increased hope and probability of reward that astronauts or polar scientists differ from the ghetto resident or prison inmate. Thus, hope and probability of reward become the keystone for all other considerations that result from setting strategies by comparing the ghetto and an extreme exotic environment, such as life at the geographic South Pole [3-8].

All extreme environments share these items or traits: forced socialization, spatial isolation, depression, time elasticity, biological dysrhythmia, sociological dysrhythmia, increased free time, noise/silence extremes, loneliness, fears of abandonment, anxiety, panic, information fractionalization, boredom and inability to escape. These attributes are universal in extreme stressful environments of either a mundane or exotic sort. As component parts of extreme stress, they offer specific intervention and prevention sites to dilute or attenuate environmental consequences. It does not matter if the dreaded consequences are hostile elements (a polar desert) or grisly surroundings (an urban ghetto). It does not matter if the dreaded consequences are largely intra-personal (a bereavement) or inter-personal (a peer conflict at one's job). It does not matter if the dreaded consequences, chiefly hopelessness, is in a setting which is exotic (testing an aircraft for the first time) or mundane (being told one has an incurable illness). In all these circumstances the universal traits must be investigated in order to see how

individually and collectively they contribute to both the perceived uneasiness and actual behavior or function of persons in that condition. How one perceives and modulates these items determines why the same circumstance is stressful to person A but not to person B.

For K-3 youngsters it is theorized that a ghetto child will have more of all these universal attributes and, hence, will be under greater physiological and psychological duress and vulnerability. The object of acculturation efforts must include assessing these traits individually and collectively in both individual subjects and cohorts. The evaluation must be sufficiently comprehensive that biological as well as psychological and sociocultural inquiries are used in the persuasion of policy. In essence the researcher makes this comprehensive approach to minimize and to correct deficits caused by the universal attributes. For the educationalist it is theorized further that the less stress a child would perceive (and/or reflect by biological inquiries), the more the child can learn and the easier it will be to teach such a child.

Incidentally, it can't be stated too forcefully that to pursue investigations on a less than comprehensive mind body basis is shortsighted, if not useless. For instance, a universal trait of those under duress is depression which usually is associated with sleep disturbance. Experiments which are conducted along only biological parameters about topics such as amount of sleep, type of sleep, physical consequence of sleep loss, fail to provide other necessary insights. Such necessary insights might include the crowded sleep accommodations that relate to a forced socialization which bespeaks of a chronic impact on the child's physical as well as psychological health.[9]

The consideration of universal attributes for extreme stress brings up other lessons that might be applied in a speculative strategy. There are a myriad of studies that deal with the most effective ways of managing stress. The situations in which these studies have been done are almost numberless. They include the effects on populations which have been subjected to bombings, torture, volcanic eruptions, floods, fires, explosions, all sorts of vehicular accidents, kidnappings and famine, to mention but a few. Also, there has been a plethora of studies devoted to how people cope in a variety of settings such as entering college or the military, moving into new cultural/national locations, grieving after the loss of a loved one and fighting in combat, to mention but a few.

Almost always these studies indicate that stress management is enhanced by some similar qualities. To list these qualities as desired strategies might lead to tactics to accomplish the aim. As obvious as it might seem, a crucial lesson is that in all extreme environments the subject does best if the hostile components in the environment are correctly perceived. Oftentimes an environment is perceived as hostile and stressful, but the subject acts as if it is not hostile. An example of this is the problem of frostbite that occurs in military operations where people know they should wear certain footgear and practice certain hygienic habits, such as keeping on clean, dry socks, but where the person fails to carry out simple and possibly life-saving behavior.

It seems incontestable that ghetto residents, especially those who are "colored", black, brown, red or yellow, must be made aware of precisely how hostile is the community in which they reside.

Of equal importance they must be taught to be certain to behave under hostile conditions as if the conditions are hostile and not as if conditions are friendly or indifferent. This may seem harsh or undemocratic or uncharitable instruction, but yet it is consistent with all that has been argued in this paper.

The exact tactics to accomplish such a strategic objective must include the use of parents, community residents, general media as well as school teachers and administrators. As a rough rule of thumb, people perceive stress and oppression in direct proportion to how much they expect and accept that their time, space, energy and ability to be mobile is restricted and/or abused. Hence, the tactics to accomplish the objective must make all the participants, besides the subject child, aware of the harm that results from the theft, especially gratuitously of time, space, energy and mobility.

Passing on to other aspects of stress management, the survey of the abundant literature would indicate that there are other ways in which people cope in order to reduce stress. In extreme environments the people who do best are those who are well-trained to their tasks and who can function in task/performance in an independent, autonomous manner. Yet this function is only part of the matrix of complicated group dynamics.

At the South Pole a "generator man" is essential since everyone's life depends on his effective and efficient functioning. If such an individual is inept or unpopular, early extrusion from the group may be required. The parallel lesson here is that every member in the group must be useful, but also must be responsible and clearly cognizant of the group's needs.

This means that in the education of a ghetto child there must be instilled an emphasis on being a contributing member of the group in terms of some special function. Equally important though is for the individual to be able to function as a helper to other specialists. All hands must turn out under the aegis of the generator man or cook or doctor, should help be required by them. The individual and the group survival depends on such an attitude. Education, whether by games, formal instruction, community pressures, parental expectation or media, should reinforce the interrelationship of individual and group goals. The nine-year-old must be able to articulate what is owed to others, versus what others owe to him, versus what is owed to self.

Yet, studies by Dollard and Gunderson[10,11] exemplify how complicated interpretation of group dynamics are in extreme situations. These difficulties somehow must be acknowledged in the extreme mundane stressful environment of a ghetto which is more complicated than the polar environment.

Dollard and Gunderson found that emotional adjustment relates to a man's specific job and the size of the group in which he works. The occupational group is a moderator of job satisfaction and job performance.

This work isn't summarized easily, but is speaks to how men isolated for seven months, without possibility of further supply, in a place where temperatures go below -100°F perceive leadership performance, task performance, social compatibility and emotional stability. Depending on one's occupational class, emotional stability (calm and even temperament) or social compatibility (friendliness and popularity) were rated most important. All

respondents, however, preferred personality-oriented traits to task-oriented traits (industriousness). It was concluded that the survival of a group in a hostile environment probably would be most threatened by emotional unstability and a socially incompatible atmosphere.

All that can be stated here is that exquisite attention to group dynamics in schools should take place if the model of extreme environments is cogitated. The fundamental thrusts in promoting group dynamics is to help mold 21st Century citizens who are confident, venturesome and flexible. To do this will demand an appreciation of how complicated dynamics are in extreme settings, as well as an understanding of the importance of doing more sophisticated studies in this realm. As a start, the studies should address the use of time, space, energy and mobilization as well as self-esteem, performance and congeniality.

The type of studies in all areas must be guided at some level by what a planner believes the 21st Century should be like and will be like. Gross assumptions must be made about problems to be faced in the 21st Century. Those who have made the best adaptation to extreme environments have been practicing futurists. That is, in their preparation for their hazard they planned the future rather than planned for the future. As an example, one might decide to take out every man's appendix who was to winter over in the Antarctic. In this manner one would not have to plan for the event of an emergency appendectomy since plans have precluded such a possibility.

Natural forces such as the winds, the currents, the rain, the sunshine, know no national boundaries. Artifactual forces such as the marvels of transportation and communication continue to erode the strength of local sovereignty. An endless variety and combination of natural and artifactual forces have crystalized the infrastructure for all the great issues of human existence. The problems to be faced in terms of food production and distribution, the use of energy resources, and the deployment of waste products all demand constant and complicated international collaboration. No single country or region of the world can solve the exceedingly serious problems that arise from de-sertification and increasing de-sectification of the earth. No single country or region in the world can handle the potential explosiveness that involves all humankind if economic insufficiencies and racial difficulties intensify. Perhaps a nine-year-old in 1790 could expect his world to function on a nationalistic basis and function with reasonable adequacy as far as he himself was concerned. Such a possibility seems unlikely for the nine-year-old in 1990. That youth already should be aware of the obligation, increasingly involuntary, for him to be a planetary citizen.

As the 21st Century is entered, this citizen must be prepared to negotiate sweeping problems which may pervade and compound the difficulties forced by the infrastructure of his existence. Lessons from extreme environments show that pure self-interest can motivate cosmopolite interactions and exchanges, which then perpetrate and energize themselves. In polar bases, Soviets have lived year round

in American installations, and vice versa, in order to accomplish specific scientific duties.

The sweeping problems for the 21st Century citizen that can be projected include: 1) the worldwide effects of migration occasioned by a welter of natural and artifactual pressures; 2) increasing human loneliness occasioned by more awareness yet more frustration in reaching entitlements and justifying one's existence; and 3) the call for more knowledge synthesis (as opposed to the call for the generation of more knowledge) illustrated by the enormous mismatches between data collection, data analysis, data interpretation, and data application in the man-machine dyad, i.e., giant satellites and super computers handle increasingly more data than humans can absorb.

In a sense, all of these issues will move the 21st Century citizen to the cosmopolite status. For example, already data banks function internationally to handle everything from economic transactions to weather prediction. Migration problems are much talked about nowadays, but consequences are not given profound acknowledgement. Recently a demographer for the White House Commission on Immigration and Refugee Policy concluded that by 2080 A.D., "at least five to six Americans in ten will be Black or Spanish or Asian origin." That is, during the next century whites will be on their way to becoming a minority in the U.S.A.[12] The education of all children should reflect this possibility in order for the transition to be smooth, productive, peaceable.

In the planning for missions in many exotic circumstances, it is taken as a given that people from all over the world must and

will participate. Hence, one couldn't have a Global Atmospheric Research Program (perhaps the largest scientific collaborative study ever undertaken) without such a mentality. The author has witnessed sessions conducted by NASA or "think tanks" in which the basic assumption was that if one has, say, a solar satellite power station, the 10,000 workers on board will be of all races and nationalities. Thus, the plan must perfect ways for them to achieve their mission. The planners do not make provisions for what to do if there is racial or language trouble. The plan must be that there can be no racial or language trouble.

Forming 21st Century cosmopolites presents some basic needs that can be nurtured in K-3. In fact, probably the needs must be nurtured at that time if proper maturation is to take place. Elsewhere there is published an account of predictions about 2040 A.D.[13] which guides this speculative strategy. Such predictions can be married to observations about how people have succeeded in extreme environments to meet the requirement for internationalism.

The Antarctic is an example of such success. Much of the success depends on the fact that everyone is made to feel comfortable with interdisciplinary and multidisciplinary efforts; next each nation which has interests there provides ample "outside" support to its own people as well as others. For example, the French allow Americans to use their facilities and men in order to launch teams to reclaim a wrecked plane. The Americans will ferry supplies to the installations of their neighbors. The Soviets will use American airstrips and will in turn collect data at their institutions for the Americans. All people there are aware of the collaboration and

the benefits. All give it, and all expect it on the sites even though elaborate, never-ending diplomatic negotiations elsewhere assure a minimum of problems.

It is the thesis of this paper that attitudes must be instilled in young people and backed by ample demonstration to emphasize the naturalness of cross national, cross disciplinary collaboration. Much of this would have to be done in group settings and brings up again the need for more knowledge of group dynamics, especially how people share resources and how they communicate. Research could help supply answers. Also, however, a new and different emphasis by all media and in classrooms could be helpful. For example, on any given day a child could hear truthfully many, many instances of international collaboration. It may be that all of us are bombarded, perhaps unfairly, but certainly unevenly, by the instances of failures in international endeavor.

Another aspect of cosmopolitanism would be to be certain that the children in extreme situations not only have visible, frequent, important, relevant outside support, but that they also become accustomed to using all available resources to sustain themselves. The 21st Century citizen must have much preparation for readiness to use such technology as computers and satellites. At each use of such technological preparation, the youth should somehow be made to feel special, privileged and helpful to himself and to others. At the South Pole such feelings are summoned to the immense gratification of the subject in skills applied in using tractors, radios or in learning techniques from another specialist as you help him. The combined feeling is one of satisfaction, usefulness and confidence in the ability to survive.

In extreme situations often there is a time elasticity. It matters not if one does something at 4:00 AM or 4:00 PM, as long as it is done sometime in a 24-hour period. Such conditions lead inhabitants to contemplate the allocation of their hours.

To prepare a cosmopolite component, instruction must be given in traditional reading and quantification skills. Yet too, more emphasis is needed on language acquisition, as well as probably some subjects which are now alien to curricula. Such subjects might include demography and propaganda analysis. They, too, could be taught in early life.

Educators could contemplate hour allocations like polar scientists. One could look more long range in deciding how many hundreds of hours, over X years would be required to gain proficiency in another language. What number of hundreds of hours should one play games or learn science?

By now, it is customary to expect that every child should attain literacy and should be given safeguards for his health. To produce a cosmopolite another right should be postulated. Using the South Pole as a model, by definition anyone who arrives there has had a right to travel. While there, he rubs off angularities about his discipline, his nationality, his ego system. Travel should become the right of every child as a step toward reducing provinciality. With relatively little expense a system could be established to insure domestic travel and probably foreign travel for youth in the ghetto.[14]

Mentioning travel brings up another of the basic educational needs of the 21st Century. Astronauts or polar scientists make long

journeys and then return home. A recognized understudied area of importance is how people enter and re-enter extreme situations. Years ago the Peace Corps did pioneer work on diluting entry problems (culture shock) and preventing re-entry problems. With the expectation of more supra-national efforts, there will be more entering and re-entering environments quite distinct to oneself. On a more modest but equally real level, with more entitlement struggles moved by migration factors, more people will be leaving and re-entering the extreme mundane stressful environment of the ghetto.

There are many lessons that entry-re-entry issues raise that could be considered by NIE. As a strategy, however, the lessons might be subsumed under the heading of the need to unlearn and re-learn. Traditional emphasis dwells on learning. Today a child could interpret that there is an unwritten dictum that one must only keep accumulating facts. Little emphasis is given on the need to get rid of unwanted, needless, unwarranted and burdensome facts. Tactics to do this would give dividends to the 21st Century.

So much for an outline of some of the challenges of the 21st Century. How to educate the citizen of that century must begin now as the NIE shapes programs it might implement in 1985 - 1990.

21st Century Education

The citizen of the ghetto, the South Pole or the next century could share with Aristotle the belief that free citizens should be schooled in reading and writing; gymnastics; music; and drawing. Such pursuits, though critical and useful, would need to be elaborated for greater effectiveness and efficiency in modern life.

In the model under consideration, those who do well at the South Pole are those who have much pride in their work and concommitant expectation of immediate and remote rewards. They are brokers of excellence, whether they serve as seismologists or electricians. They are able and willing to take their share of all duties and to integrate these experiences into their own advancement and comfort. Descriptively, they are heuristic, social epistemologists. Functionally, they are experts at transferring and synthesizing knowledge.

As unimaginative as it sounds to nurture such qualities in the 21st Century, one should first of all be sure that youngsters know the range and scope of intellectual possibilities. Technicians, scientists, managers and workers will need to have deep acquaintance with the kinds of occupations that will be important. By age nine, the youngster should know that the transfer and synthesis of knowledge, the unlearning of information, the global significance of data are the province of everyone.

Such a child, like those privileged to live in an extreme exotic environment, should rejoice in how various specialties interrelate and interdepend. He should begin to be able to appreciate how forest science relates to energy surveys, entomology and agribusiness. He should appreciate the commonalities and unity amongst school systems, police departments and industry. Of course, what is taught to children are not necessarily big words but big concepts, not big problems but big approaches. It is the methodology and approach to thinking that must bear more of the student's time.

The questions that will promote pride are evolved from knowing how one thinks and why one thinks the way one does. These are equally important ingredients for what one thinks. Yet at the same instance, teachers must never lose sight that for ghetto youth, as for most polar scientists, conation takes early precedence over cognition. This means that one motivates someone to be a synoptic meteorologist by telling him all the neat things and perquisites that belong to that profession. Only later in developmental terms do you deal with the details of what one must learn in order to be a synoptic meteorologist. By then, the person has been seized and will see such things only as detail and nuisance-obstacle in obtaining the desired satisfaction.

Pride, however, is the quintessential sin. So the educator must beware not to overemphasize it. In this model one type of thinking that could be nurtured in K-3 would help to dilute and attenuate false and excessive pride. This would be related to getting the child to appreciate varying time/space scales from the extragalactic to the submolecular. By constantly reminding one about these different time/space scales, one's pride is easier kept in perspective.

The illustration from the polar area would be in a conversation between a systemic biologist and an electrical engineer. One is recounting that his interest, a micro-climate, is measured in terms of centimeters and minutes. The other reports his interest, extragalactic cosmic rays that course through our earth, is measured in terms of light years. An oceanographic climatologist chances by and indicates that he, too, is interested in climate, but his

measurements are in terms of global movements and years. All have a fraction of truth. All need each other to make in-roads onto the magnificent problem of weather control, all must be a bit more humble about his own contribution to the solution to the problem.

It is proposed that everyday attention to time/space in one's thinking help move one to the position of the cosmopolite. The necessary pride and humility again speaks to the desirability of flexibility in the maturing citizen. Just as pride and humbleness are demanded, there are other paradoxical demands that must be maneuvered. Hence, flexibility and tentativeness of thinking become important in the armamentarium of the 21st Century citizen.

Toward that end, the education should stress that there are golden moments in which one must alternatively take an earthworm's view of things or an eagle's view of things. Also, we must be clear and concise in communication, but also must be an attentive and active listener. One must appreciate one's own and other's qualitative interpretation of the universe with no less regard than one values the quantitative interpretations of the universe that are offered by scientists.

Flexibility has been the sine qua non for those who did well in extreme environments. Perhaps the educated 21st Century citizen should have had rehearsals since childhood about being flexible in his passions. Such passions are incessant and universal. They are subjected to blatant and subtle appeals. Children should be taught to recognize and isolate them since just as they trouble inhabitants of extreme environments, they complicate childhood.

For appropriate decision making the subject must have flexibility in solving these equations: Will it hurt versus will I lose love? What is the happiness to be gained (neophilic reaching out) versus what is the happiness to be lost (neophilic holding on)? Do I act,or do I not act? Do I understand being tolerated versus being accepted? Can I differentiate between warmth and understanding? Do I move to tear down versus do I move to build?

Armed with instruction about pride and flexibility, the next element of instruction for the K-3 in 1990 might be to inculcate ideas of destiny control. Probably the two best areas for such instruction for youngsters would be about their health and racism.

Children, like the inhabitants of extreme environments, are very susceptible to forming habits to augment their strength, power and adequacy. Nevertheless, better methods must be located to instill into follow-through youth that they themselves control a good percentage of how well they feel and how long they will live. Schools, agencies and parent-trainers can teach with ease the statistical relevance of a person choosing on his own to exercise regularly, eat breakfast, keep his weight down, elect not to drink or smoke and to get adequate sleep.

The emphasis must be on choice and values. The model of extreme environments would predict that the best-adjusted and happiest inhabitants (which probably means also those with the most and best options) are more likely to value:

health over longevity
time over wealth
satisfaction over privilege
freedom over security.

Education must first exteriorize the values so that a choice is possible. In a study being prepared, my colleagues (Drs. M. Popkin and V. Stillner) and I observed that in an 1,100-mile dog sled race in Alaska, organic brain derangement was common. What was staggering was that after several weeks on this trail, sleeping out all night, battling hypothermia and ferocious elements such as a -40°F temperature, and high winds, people could overcome the mental deficit by staying focussed on how to survive and finish the race. What this means is that being able to concentrate on what you believe you can control can be life saving. Destiny control is hyperawareness and electing to attain your values.

The same hyperawareness is important in banishing racism. A host of hyperawareness training methods using media, role playing, actual observations could help both coloreds and whites to act differently in regard to the use and abuse of time, space, energy and mobility as dictated by skin color.

Elimination of racism must be a paramount aim of 1990 K-3 inner city youth. Pride, destiny control, flexibility must be augmented by a spirit of sacrifice and a conscious realization that it is not in their foreseeable future that there will be true equality and justice for any person with colored skin (Black, Brown, Red or Yellow). A youngster recognizing this as unassailable truth is in a position to command the reality that surrounds him. As pointed out, no inhabitant of an extreme environment can survive if there is fuzzy appraisal, confusion or denial about how hostile or dangerous is his situation.

Youngsters must be made aware by all formal and informal educative means that in order to compete at whatever level -- athlete, laborer, scholar, politician -- colored skin obliges a "better than others" performance for the same reward. If the child is schooled already in demographic, systems and propaganda analysis this obligation will be easily incorporated[15].

Once this is achieved and keener formulations of values and group dynamics begins to take place, the colored 21st Century citizens (who will be at least in the early part of the century almost surely largely urban and segregated) may take a longer time scale. Sacrifice may then be the cardinal goal for the entire group. A couple generations would give up an extraordinary amount so that successors could live better.

Sacrifice might be geared toward the elaboration and prosecution of a hundred-year plan. The aim of such a plan would be to eliminate racism and to help superintend the consequences of the likely change from majority to minority status of white citizens in the U.S.A. Borrowing from the well-studied, well-financed extreme environment of Antarctic living, this plan could look at logistical planning and coordination at that site. Roughly, contingencies must be rather exhaustively categorized and anticipated, e.g., various scenarios such as the whites offer extreme resistance to this change in social status all the way to one in which the whites accept it joyfully.

If the other educational aims catalogued in this paper have some effect, the adult of the early 21st Century may be more aware of his own indigenism while yet embracing planetary citizenship.

The person might also recognize and tolerate different styles and modes of thinking. My projection would be that the most essential feature of understanding one's ethnicity, while still appreciating the universal human-specific qualities of all humans, will turn out to depend on knowing how and why one thinks even before knowing what one thinks.

For Blacks and perhaps for other coloreds or even low class whites, thinking may be more defensive, anticipatory, resigned multi-simultaneous, quicker, more kaleidoscopic, more impressionistic, more end-result oriented (rather than process-oriented) and more "survivalistic." It may be characterized by an easier recognition and acceptance of looking at things as different rather than seeking to arrange things in a hierarchical fashion. That is, there may be an inclination to more "horizontal" than "vertical" thinking.

The vertical thinking illustrated by the philosopher-king mentality may be replaced more consciously by a mentality that could be characterized as the horizontal thinking of a "sage-commoner." If such thinking becomes more deliberately used it would follow that parent involvement would be of importance. But also, child involvement might take on more significance. The philosopher-king would be of a mental set that he would know what children should do next in their development. The sage-commoner would be of a mental set that would be more accepting of including what the child of nine says are his developmental goals toward becoming a teenager.

Conclusions

This paper did not talk of statistics. Nor did it speak of a ghetto in terms of objective indices such as crime, illness,

density clustering, poverty, and substandard housing. The emphasis is on understanding how an individual perceives his environment. For only his own perceptions and associations to perceptions can render the environment overwhelmingly destructive to him.

What is sought is to suggest that more of life be taught in schools and elsewhere. What is sought is to allow youngsters a firmer grip in anticipating and controlling their lives. Hope is queen. From that are born the qualities that would make the 1990 K-3 youngster into a 21st Century adult who would be a cosmopolite. His mind would be flexible and facile. His temperament would be generous, compassionate and non-exploitative. He would be able to solicit help and take good advice. He would be able to supply needed counsel and respect other people. He could recognize the importance of asking others to help.

In terms of the extreme environment from which he came, he would be ever-alert to adapt to unforeseen events. Having been taught about life, he would see it as how he values and organizes himself to mobilize and develop energy to negotiate an unknown but finite amount of time and space.

All will be lost, however, if the education given to this youth makes him accommodate to oppression and inequity. The goal remains that public education for Blacks must not be permitted to continue to succeed. Unfortunately, public education has been an astonishing success for the great bulk of Black people. If it had not succeeded then generation after generation of Blacks would not have accepted the disenfranchisement that was their adult reality in a system which so vociferously taught democracy and opportunity.

The article presents a "speculative strategy" derived from personal knowledge. In terms of the ancient argument about whether or not virtue can be taught, the view is expressed that if hope is instilled, virtue has a chance to flourish. To begin to give substance to a theory of speculative strategy tactics must be addressed. From my own knowledge of the extreme environments of the ghetto and the South Pole, I would suggest that one possible research step is to discover and refine indicators of performance in K-3 in inner cities. In the Arctic, my colleagues and I have been able to predict over 60% variance in performance by a single psychological indicator and a single sociological indicator. Even greater predictability is provided by an additional single indicator of a blood test. The holistic search for psychological, biological and sociological indicators that relate to specified performance, over time, by K-3 would be possible using models already developed in the Arctic and Antarctic.

Since everyone at some time has experienced stress extreme for himself, it can be understood that the sheer energy required to deal with the stress is enormous and perhaps greatly underestimated by others. The K-3 youngster targeted by NIE has this possibility the same as everyone else. His general surroundings and conditions, however, makes any stress more desperate and compounds the hardship and ingenuity required to cope.

Acute and chronic energy usage and the obligation for constant mobilization for defense may be the research area around which extreme environment inhabitants should be studied.

This paper suggests that one handle to study energy drainage or energy banks, energy sinks, or energy repletion, in groups and individuals is by factoring out for isolation the common qualities or traits of extreme environments. These qualities are: forced socialization, spatial isolation, depression, time elasticity, biological dysrhythmia, sociological dysrhythmia, increased free time, noise/silence extremes, loneliness, fears of abandonment, anxiety, panic, information fractionalization, boredom, and inability to escape.

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